

ABSTRACT

Methods of Controlling Communication Parameters of Wireless
Systems

5 The present invention provides a method for controlling a
communication parameter in a channel through which data is
transmitted between a transmit unit with M transmit antennas and
a receive unit with N receive antennas by selecting from among
proposed mapping schemes an applied mapping scheme according to
10 which the data is converted into symbols and assigned to
transmit signals TS_p , $p=1...M$, which are transmitted from the M
transmit antennas. The selection of the mapping scheme is based
on a metric; in one embodiment the metric is a minimum Euclidean
distance $d_{min,rx}$ of the symbols when received, in another
15 embodiment the metric is a probability of error $P(e)$ in the
symbol when received. The method can be employed in
communication systems using multi-antenna transmit and receive
units of various types including wireless systems, e.g.,
cellular communication systems, using multiple access techniques
20 such as TDMA, FDMA, CDMA and OFDMA.

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